IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Steven Ochs et al.

Group Art Unit: 2627

Examiner: Jason C. Olson

Serial No.: 10/696,321

Filed: October 29, 2003

For: METHOD FOR INTELLIGENT TAPE DRIVE SUBSYSTEM CONTROL AND MONITORING IN A TAPE LIBRARY

Attorney Docket No.: 2003-053-TAP (STK 03053 PUS)

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an Appeal Brief from the final rejection of claims 1-25 of the final Office Action mailed on December 7, 2006 for the above-identified patent application.

I. REAL PARTY IN INTEREST

The real party in interest is Sun Microsystems, Inc., a corporation organized and existing under the laws of the state of Delaware, and having a place of business at 4150 Network Circle, Santa Clara, California 95054. Sun Microsystems, inc. is the successor-in-interest to Storage Technology Corporation, the assignee of record in this application ("Assignee"), as set forth in the assignment recorded in the U.S. Patent and Trademark Office on October 29, 2003 at Reel 014671/Frame 0206.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to the Appellant, the Appellant's legal representative, or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-25 are pending in this application. Claims 1-25 have been rejected and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

An amendment after final rejection was filed on April 13, 2007, and has been accepted for entry.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a library storage system for adding intelligence to a tape drive tray subassembly in order to provide better control, monitoring, and diagnostics of a library's subsystem. (Page 1, lines 5-12). Figure 3 illustrates an intelligent tape drive tray subassembly in accordance with the present invention. The tape drive tray subassembly 302 contains various items, such as, for example, a tape drive 304, a power supply 306, a fan 308, a temperature sensor 310, and indicator lights for power and fault status 312. (page 8, lines 4-8)

An intelligence module 314 may be stationary within the drive tray 302. The intelligence module 314 may periodically sample status signals generated from devices within

the drive tray 302. Such signals may include tape drive power 316, fan status 318, and temperature data 320. The intelligence module 314 may then send the status signals to main library controller 322 through tray controller interface 326. This and other information may be communicated from the intelligence module 314 to the library controller 322 in order to facilitate adding intelligence to the tape drive tray 302 in accordance with the present invention. (Figures 2-3; page 8, lines 8-16).

Independent claim 1 relates to a tape library storage system having at least one tape drive tray. (Figure 1). The tape library storage system further includes an intelligent module stationary within the at least one tape drive tray. The intelligence module includes electronics to control and monitor tape drive tray functions in the storage library. A main library control is interfaced with the intelligence module such that the intelligence module can send tape drive tray function data to the main library controller. (Figure 3; page 8, lines 4-16)

Independent claim 12 relates to a method of transmitting data between a tape drive tray and a main library controller. (Figure 3). The method includes controlling and monitoring tape drive tray functions using an intelligence module stationary within the tape drive tray and sending tape drive tray function data to a main library controller interfaced to the intelligence module. (Figure 3; page 8, lines 4-16)

Independent claim 23 relates to a method of transmitting data from tape drive tray to a main library controller. The method includes periodically sampling status information generated from devices within the tape drive tray and sending the status information to a main library control under serial format from an intelligence module stationary within the tape drive tray. (Figure 3; page 8, lines 4-16)

Independent claim 25 relates to a method of controlling devices located within a tape drive tray. The method includes transmitting controls added to the tape drive tray in the

serial format, receiving the control data at the tape drive tray with a stationary intelligence module within a tape drive tray decodes the control data, using the stationary intelligence module to drive the discreet signal lines to a state as specified in the control data. (Figure 3; page 8, lines 4-16)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-6, 9, 11-17, 20, and 22 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S.P.A. 2004/0056568 to Carlson; and

2. Claims 7, 8, 10, 18, 19, 21, and 23-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Carlson application in view of U.S.P.A. 2005/0057847 to Armagost.

VII. ARGUMENT

A. Claims 1-6, 9, 11-17, 20, and 22 Are Patentable Under 35 U.S.C. § 102(e) Over The Carlson Application

Claims 1-6, 9, 11-17, 20, and 22 are patentable under 35 U.S.C. § 102(e) over the Carlson application as the Carlson application fails to particularly teach each element recited in independent claims 1 and 12 such that these independent claims and the dependent claims that depend therefrom are patentable over the Carlson application.

Independent claims 1 and 12 both relate to a tape library storage system having a tape drive tray with an intelligence module included within the tape drive tray. The intelligence module is stationary within the tape drive tray and used to control and monitor tape drive tray functions. The intelligence module communicates with a main library controller to send data to the main library controller so as to facilitate operations associated with the main

library controller controlling the tape library storage system. The Appellants respectfully submit that the Carlson application fails to disclose a stationary intelligence module within a tape drive tray.

The Carlson application discloses a rack-mounted storage library 20 which includes a first library module 22, second library module 24, and a third library module 26. Each of these library modules 22-26 is mounted within a rack or cabinet 28. (Paragraph 29). In order to accommodate disk cartridge sharing between the modules 22-26, each of the modules stores media elements (disk cartridges) within a number of storage bins 74. Each of the modules also includes an opening 52 in a top panel 44, as shown in Figure 2. (Paragraph 32). An elevator system 100 operates in cooperation with the opening 52 to facilitate transferring the media elements between the various modules 22-24. (Figures 3 and 4; Paragraph 37)

The elevator system 100 includes a climber elevator 110 which is adapted to interact with elevator support track 102. Climber 110 includes a drive motor 112 and related gearing 114 which is designed to interact or cooperate with related track gears 104. Both the motor 112 and gearing 114 are attached to coupling support 116 which is designed to interact with guiding slots 106 and elevator support track 102. (Paragraph 38) On the backside of coupling support 116 is located a controller housing 140 which controls an elevator controller 142 in communication devices 144. (Paragraph 40)

The controller 142 directs operation of the elevator system 100 to achieve appropriate movement and direction. Controller housing 140 contains communication devices 144 which provide a link to a library storage system controller 150 contained within library system 20. (Paragraph 41). With the appropriate housing openings 52 aligned with one another, and the common geometry of the various library modules, the library storage system

controller 150 is able to direct elevator system 100 to transfer storage media between various library modules 22-26. (Paragraph 43)

The Appellants respectfully submit that the Carlson application fails to disclose an intelligence module stationary within a tape drive tray, as recited in independent claims 1 and 12. The Carlson application only discloses a elevator system 100 having a control housing 140 which contains an elevator controller 142 and communication device 144. The controller housing 140 travels between the tape drive trays 22-26 in order to transfer media elements therebetween. Because the controller 140 travels between different tape drive trays, the Carlson application fails to disclose that the controller 140 is stationary within a single tape drive tray.

Claim 1 claims "an intelligence module stationary **within** the at least one tape drive tray" and claim 12 similarly claims "controlling and monitoring tape drive tray functions using an intelligence module stationary **within** the tape drive tray." Both of these claims clearly state that the intelligence module is stationary **within** the tape drive tray. The intelligence controller 140 of the Carlson application is part of an elevator system 100 operable between the modules 22-26 to facilitate moving the media elements stored within the bins 74 from module 22-26. A controller that moves from one module to another cannot teach the claimed intelligence module that is stationary **within** a tape drive.

Accordingly, the Carlson application fails to disclose each feature recited in independent claims 1 and 12 as required to properly reject these claims under 35 U.S.C. § 102(e), such that these independent claims and the dependent claims that depend therefrom are patentable over the Carlson application.

B. Claims 7, 8, 10, 18, 19, 21, and 23-25 Are Patentable Under 35 U.S.C. § 103(a) Over The Carlson and Armagost Applications

1. Claims 7, 8, 10, 18, 19, and 21Are Separately Patentable Under 35 U.S.C. § 103(a) Over the Carlson and Armagost Applications

Claims 7, 8, 10, 18, 19, and 21 are patentable under 35 U.S.C. § 103(a) over the Carlson and Aramgost applications as these claims depend from patentable independent claims 1 and 12 and are patentable at least for the same reasons that these independent claims are patentable.

2. Claims 23-25 Are Separately Patentable Under 35 U.S.C. § 103(a) Over the Carlson and Armagost Applications

Claims 23-25 are separately patentable under 35 U.S.C. § 103(a) over the Carlson and Armagost applications. These claims include independent claims 23 and 25 which include limitations directed towards using an intelligence module stationary within a tape drive tray to communicate data in a serial format. Neither of the references cited by the Examiner teach these limitations.

The arguments set forth above with respect to the Carlson application failing to teach an intelligence module stationary **within** the at least one tape drive tray are hereby incorporated in their entirety. Claim 23 claims "sending the status information to main library controller in a serial format from an intelligence module stationary **within** the tape drive tray" and claim 25 similarly claims "a stationary intelligence module **within** the tape drive tray decodes the control data." The Carlson application fails to disclose or teach these limitations.

The Carlson application only relates to a controller 140 that is movable between modules 22-26 by way of a elevator system 100. The Carlson application fails to provide any suggestion or teaching to use the controller 140 as a stationary feature within the modules 22-

26. The Carlson application teaches away from such a suggestion as it is aimed at systems appropriately designed to allow media elements to be easily transferred between modules. (Abstract). The Appellants submit the failure of the Carlson application to teach the claimed stationary intelligence control module renders claims 23 and 25 patent over the Carlson and Armagost applications as the Armagost application fails to make up for the noted deficiencies of the Carlson application.

C. Conclusion

In view of the foregoing, the Appellants respectfully submit that each rejection has been fully replied to and traversed and that the case is in condition to pass to issue. The Board is respectfully requested to pass the case to issue.

The fee of $500.00 as applicable under the provisions of 37 C.F.R. § 41.20(b)(2) should be charged to our Deposit Account No. 02-3978. Please also charge any additional fee or credit any overpayment in connection with this filing to our Deposit Account No. 02-3978.

Respectfully submitted,

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Enclosure - Appendices

VIII. CLAIMS APPENDIX

1. A tape library storage system, comprising:

at least one tape drive tray;

an intelligence module stationary within the at least one tape drive tray, said intelligence module having electronics to control and monitor tape drive tray functions in the storage library; and

a main library controller interfaced to the intelligence module, wherein the intelligence module sends tape drive tray function data to the main library controller.

2. The system in claim 1, wherein the intelligence module interface includes a tape transport interface port.

3. The system in claim 1, wherein the tape drive tray function data is sent via a wireless connection.

4. The system in claim 3, wherein the wireless connection includes at least one of a radio frequency or infrared transmission.

5. The system in claim 1, wherein the main library controller transmits commands to be performed on the tape drive tray by the intelligence module.

6. The system in claim 5, wherein positive or negative acknowledgment of the commands is sent back to the main library controller after the commands are received by the intelligence module.

7. The system in claim 5, wherein the main library controller transmits the command to the intelligence module in a serial format.

8. The system in claim 7, wherein the intelligence module decodes the serially formatted command into discrete signals corresponding to a specific tape drive tray interface.

9. The system in claim 1, wherein the tape drive tray includes at least one of a tape drive, a power supply, a fan, a temperature sensor, and a fault indicator light, each interfaced to the intelligence module.

10. The system in claim 1, wherein the intelligence module sends tape drive tray function information to the main library controller in a serial format.

11. The system in claim 1, wherein the tape drive tray function data is gathered by periodically sampling status signals from the tape drive tray.

12. A method of transmitting data between a tape drive tray and a main library controller, comprising:

controlling and monitoring tape drive tray functions using an intelligence module stationary within the tape drive tray; and

sending tape drive tray function data to a main library controller interfaced to the intelligence module, wherein the intelligence module sends the data to the main library controller.

13. The method in claim 12, wherein the intelligence module interface includes a serial interface to a tape drive.

14. The system in claim 12, wherein the tape drive tray function data is sent via a wireless connection.

15. The system in claim 14, wherein the wireless connection includes at least one of a radio frequency or infrared transmission.

16. The method in claim 12, wherein the main library controller transmits commands to be performed on the tape drive tray by the intelligence module.

17. The method in claim 16, wherein positive or negative acknowledgment of the commands is sent back to the main library controller after the commands are received by the intelligence module.

18. The method in claim 16, wherein the main library controller transmits the command to the intelligence module in a serial format.

19. The method in claim 18, wherein the intelligence module decodes the serially formatted command into discrete signals corresponding to a specific tape drive tray interface.

20. The method in claim 12, wherein the tape drive tray includes at least one of a tape drive, a power supply, a fan, a temperature sensor, and a fault indicator light, each interfaced to the intelligence module.

21. The method in claim 12, wherein the intelligence module sends tape drive tray function information to the main library controller in a serial format.

22. The method in claim 12, wherein the tape drive tray function data is gathered by periodically sampling status signals from the tape drive tray.

23. A method of transmitting data from a tape drive tray to a main library controller comprising:

periodically sampling status information generated from devices within the tape drive tray; and

sending the status information to main library controller in a serial format from an intelligence module stationary within the tape drive tray.

24. The method in claim 23, wherein the devices generating status information include at least one of a tape drive, a power supply, a fan, a temperature sensor, and a fault indicator light.

25. A method of controlling devices located within a tape drive tray, comprising:

transmitting control data to the tape drive tray in a serial format;

receiving the control data at the tape drive tray, wherein a stationary intelligence module within the tape drive tray decodes the control data; and

using the stationary intelligence module to drive discrete signal lines to a state as specified in the control data.

IX. EVIDENCE APPENDIX

"None"

X. RELATED PROCEEDINGS APPENDIX

"None"